



# AD20msp425

## GSM/DCS1800/PCS1900 Baseband Processing Chipset

### REDUCE TIME TO MARKET WITH LOW-RISK, FAST DEVELOPMENT SOLUTIONS FOR DIGITAL MOBILE PHONES

The AD20msp425 baseband processing chipset offers industry-leading advances in cost, size and power consumption for next generation handsets based on GSM, DCS1800 and PCS1900 cellular-phone standards.

This low-risk solution is built on the same system architecture as the type-approved AD20msp410 and AD20msp415, thereby significantly shortening handset design and test time and facilitating type approval for new phones. The AD20msp425 can cut development and testing times to well below the six months the process typically requires.

In addition, the AD20msp425 offers functional enhancements and extensive power-saving features that let you produce smaller, lighter-weight mobile phones that outperform your competition. The new chipset even incorporates all necessary hardware and software for enhanced personal-computer fax and data services that previously required an external printed-circuit board.

*Analog Devices' newest GSM baseband processing chipset, the AD20msp425, provides dramatic cost and performance advantages, and allows for fast production ramp-up.*



### FEATURES

- Full-rate (FR) and enhanced-full-rate (EFR) voice codecs for better voice quality than ever before
- Fully integrated hardware and software for data and fax/modem capability up to 14.4 kbps
- Reduces development time: speeds design, testing and type approval
- Ultralow standby power consumption, permitting more than 200 hours of handset standby time
- Compact and lightweight: the plastic BGA package consumes 70 percent less board space chip-for-chip than the AD20msp415
- Same architecture and interfaces as the type-approved AD20msp410 and AD20msp415
- GSM Phase 2 compatible — Phase 2 protocol stack available
- Layer 1 software included: uses the same software as type-approved AD20msp410 and AD20msp415
- Flexible support options: complete development system or form-factor reference design



## ENHANCED CHIPSET PERFORMANCE AT LOWER COST

The AD20msp425 consists of two sub-micron CMOS components — an advanced GSM processor and voiceband/baseband codec — that perform the entire baseband signal processing in a GSM handset.

Improving on its type-approved predecessors, the AD20msp410 and AD20msp415, the new chipset reduces the number of necessary external components — and therefore the size and cost of the handset itself. In addition, by integrating fax and data capabilities directly into the chipset, a AD20msp425-based cellular phone eliminates the need for a separate PCMCIA card to interface a portable computer's modem to the GSM mobile-phone network, further reducing costs to users.

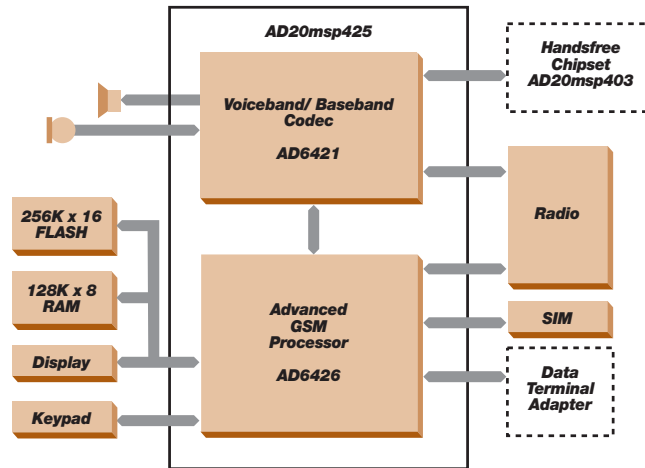
A 2.4-volt low-supply voltage, combined with extensive power-down options, provides an industry-leading standby time of more than 200 hours on a standard battery.

The AD20msp425 implements all voice and data services for GSM systems and variants such as DCS1800 and PCS1900. It also interfaces directly with Analog Devices RF processing chipsets, and — for in-car applications — the AD20msp403HF hands-free chipset.

## CUT TIME-TO-MARKET WITH CHIPSET/SOFTWARE COMBINATION

The AD20msp425 chipset includes complete Layer 1 software, developed jointly with The Technology Partnership (TTP). Nearly identical to the AD20msp410 and AD20msp415 type-approved versions, the software helps speed and simplify product development and type approval.

Additional software options include a complete GSM Phase 2 compatible protocol stack (Layers 2 and 3), configurable software for customizing the user interface, and a package that supports GSM data services for linking handsets to the Internet and to electronic-mail accounts.



These updated software packages protect your current investment, while minimizing development time and risk.

## COMPREHENSIVE DEVELOPMENT SUPPORT TO MEET YOUR UNIQUE NEEDS

Analog Devices provides a wide range of development support options to serve your diverse engineering and design needs.

The GSM Development System combines a universal motherboard with daughter boards for baseband and radio sections. This laboratory system comes completely assembled and tested — ready to make calls to a network. It allows for hardware and software development and supports real-time emulation of the GSM processor's microcontroller.

For developers interested in a system-level approach, Analog Devices will provide a form-factor reference design of a complete mobile phone. As a model for your next-generation product, this design requires minimum engineering effort from prototype to series production.

## ANALOG DEVICES: A LEADER IN GSM

An established supplier of components and solutions to GSM handset manufacturers, Analog Devices has an incomparable track record of high-volume, low-cost manufacturing and delivery. The company has provided mixed-signal processors and baseband converters for millions of GSM handsets worldwide. The AD20msp410 was the

industry's first to achieve type approval for an open-market chipset/software solution.

Software partner, The Technology Partnership, is a product-development and engineering company based in the United Kingdom. Formed in 1988, TTP is a leading independent developer of GSM technology worldwide.

## ANALOG DEVICES IN COMMUNICATIONS

Analog Devices is committed to supplying the communications industry with the highest performance solutions at the lowest possible cost. The company draws on its leadership position in high-performance analog and digital signal-processing capabilities to meet the needs of the broadband wired and wireless markets.

Visit us on the  
Worldwide Web at:  
[www.analog.com](http://www.analog.com)

or send e-mail to:  
[comms.div@analog.com](mailto:comms.div@analog.com)



© Analog Devices, Inc., 1998. All rights reserved. Trademarks and registered trademarks are the property of their respective companies.

Printed in the U.S.A. H3288-7.5-2/98

## AD20msp425 COMPRISES:

- Advanced GSM processor

The AD20msp425 combines a powerful 16-bit microcontroller, the ADSP-218x digital signal processor and a complete channel codec on a single device. The microcontroller performs all protocol stack tasks and controls all digital interfaces to memory, keyboard, display, subscriber-identity-module (SIM), and radio section. The DSP performs complete speech-codec functions, as well as enhanced-full-rate handling of speech, fax and data. Its high performance, soft-decision Viterbi equalizer ensures optimum connections even under difficult transmission conditions. The 144-lead processor is packaged in a 20 mm x 20 mm TQFP or a 13 mm x 13 mm PBGA.

- Voiceband/Baseband Codec

The AD6421 chip contains all analog components for the baseband section. These include amplifiers and filters, as well as analog-to-digital and digital-to-analog converters for baseband and voiceband signals. The chip also contains auxiliary converters for automatic gain control (AGC), automatic frequency control (AFC), and power-amplifier (PA) control. Voiceband/baseband codec enhancements reduce power consumption and minimize requirements for external components. The AD6421 is packaged in a 64-terminal 10 mm x 10 mm TQFP.

- Software

The AD20msp425 includes Layer 1 software. Also available are an object-code license for protocol-stack Layers 2 and 3 and an applications background and user interface development system.